

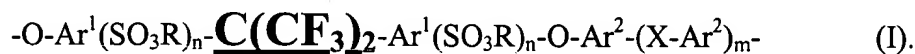
**REMARKS**

Applicants respectfully request reconsideration in view of the following remarks. Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Helmer-Metzmann et al. U.S. Patent No. 5,834,566 ("the '566 patent"). Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the '566 patent. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcayir '334 in view of Bikson et al. U.S. Patent No. 5,364,454 ("the '454 patent"). Claims 28, 38 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent in view of Kawakami et al. U.S. Patent No. 4,971,695 ("the '695 patent"). The applicants respectfully traverse these rejections.

**Rejections over the '566 patent**

Claims 1, 2, 19-22, 24, 25, 27-30, 32-37 and 39 are rejected under 35 U.S.C. 102(a/e) as being anticipated the '566 patent. Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the '566 patent. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent. Claims 28, 38 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '566 patent in view of the '695 patent.

The applicants' claimed invention requires instant formula (I)



Formula (I) requires the presence of a  $\text{—C(CF}_3)_2\text{—}$  group in the polymer backbone which is sulfonated. The polymer backbone is a polyether ketone. US '566 discloses several sulfonated polyether ketones but none of them require a  $\text{—C(CF}_3)_2\text{—}$  group as is required by the applicants' claimed invention. The only portion in US '566 which refers to a  $\text{—C(CF}_3)\text{—}$  group is on column 4 where other polymers being named which form an alloy/blend with a sulfonated polyether ketone. The second component in such a blend according to US' 566 can be aromatic polysulfones as described by formula (V). In this formula a radical Z is mentioned which stands also for a  $\text{—C(CF}_3)\text{—}$  group. Again this relates to the polysulfones being blended with the polyether ketones disclosed in US '566 and not to the polyether ketone as such. The Examiner will note that a polysulfone always requires the presence of a  $\text{—SO}_2\text{—}$  group in the polymer backbone, but this group is not required in the applicants' formula (I). In view of the above, the applicants believe that their claimed invention is novel and unobvious over US' 566.

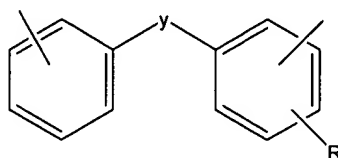
US '695 refers to sulfonated polysulfones (polysulfone polymers having a  $\text{—SO}_2\text{—}$  group in the polymer backbone and carrying  $\text{—SO}_3\text{H}$  group from sulfonation). The Examiner states that US '695 teaches polymers containing  $\text{—C(CF}_3)\text{—}$  group in general. This is an unreasonable extension of the teaching given by US '695 which refers to polysulfones. There is no hint given in US '695 (see in particular column 5, lines 13 to 45) which would suggest to a person of ordinary skill in the art to generalize the teaching give by US '695 to all classes of polymers containing a  $\text{—C(CF}_3)\text{—}$  group.

For the above reasons, these rejections should be withdrawn.

### **Rejection of Claim 40**

Claim 40 was rejected under 35 U.S.C. 103(a) as being unpatentable over '334 patent in view of the '454 patent. Claim 40 further limits claim 32 which further limits claim 29. Therefore, claim 40 has all the features of claims 29, 32 and 40. The Examiner did not reject claims 29 and 32 over this ground of rejection.

The material disclosed in the '334 patent are polyimides copolymers in which the comonomer is formed by  $Ar_2$ . The definition of  $Ar_2$  allows for



wherein Y can be  $=C-(CF_3)_2$  and R can be  $-SO_3M$  (see claim 1). The applicants' claimed invention is different from the '334 patent because the '334 patent requires a polyimide (see the title, Field of Invention, Summary of the Invention, Detailed Description of the Invention and claims) and the applicants' claimed invention is a sulfonated aromatic **polyetherketone** polymer. A polyetherketone polymer is not taught or suggested by the '334 patent.

The material of the applicants' claim 1 shows a reduced swelling in water. Since water is being formed in a fuel cell, the swelling behavior is essential. The '334 patent is further removed from the applicants' claimed invention because, the application in the '334 patent differs from fuel cells (they use it for gas separation where the swelling behavior is uncritical).

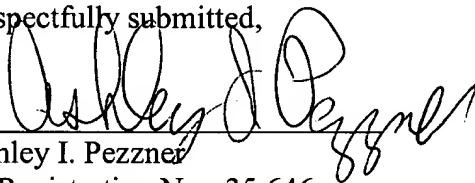
The '454 patent was just cited for the film casting. Therefore the secondary reference does render the applicants' claimed invention obvious. For the above reasons, this rejection should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed

to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

A two month extension fee has been paid. In addition a Notice of Appeal has been filed. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 08577-00038-US from which the undersigned is authorized to draw.

Respectfully submitted,

By 

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